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13/264,626	11/08/2011	Takenobu Sakai	Q127188	1385

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EXAMINER
MCMAHON, MARGUERITE J

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TAKENOBU SAKAI

Appeal 2015-005041
Application 13/264,626
Technology Center 3700

Before LINDA E. HORNER, LYNNE H. BROWNE, and
PAUL J. KORNICZKY, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Takenobu Sakai (Appellant)[1] seeks our review under 35 U.S.C. § 134(a) of the Examiner's decision, as set forth in the Final Action dated June 12, 2014, rejecting claims 7–13. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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[1] Appellant identifies TOYOTA JIDOSHA KABUSHIKI KAISHA as the real party in interest. Appeal Brief dated November 24, 2014, at 2 ("Appeal Br.").

CLAIMED SUBJECT MATTER

Appellant's claimed subject matter relates to "a structure for a combustion chamber of an engine, such as a reciprocating engine and a manufacturing method thereof." Spec. para. 1. Independent claim 7 is illustrative of the subject matter on appeal and is reproduced below.

> 7. An engine combustion chamber structure, wherein an anodic oxide film having a thickness of from more than 20 μm to 500 μm and a porosity of 20% or more and a pore diameter in the nanometer order is formed on the inner surface of the engine combustion chamber.

REJECTION

The Final Action contains a rejection of claims 7–13 under 35 U.S.C. § 103(a) as unpatentable over Ogawa (US 2007/0218303 A1, published September 20, 2007), Nakada (JP 2005-349692 A, published December 22, 2005), and Kobayashi (JP 2003-013801 A, published January 15, 2003).[2]

ANALYSIS

The Examiner finds that "Ogawa . . . describes the anodic oxide film as including a porous layer 5 but does not define the porosity in terms of percentages and does not discuss pore diameter." Final Act. 2. The Examiner finds that "Nakada . . . teach[es] that the term non-porous applies

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[2] The Examiner further references Yamaguchi (JP 2003-003296 A, published January 8, 2003). Final Act. 6 (cited as evidence that "a non-porous anodic oxide film over an aluminum base is considered to be 30% or less"); *see also* Examiner's Answer dated February 5, 2015, at 8 ("Ans.") (explaining that "[t]he examiner has not relied upon Yamaguchi in the Final Rejection and has only cited Yamaguchi as of interest").

to an anodic oxide film having a porosity of 20% or less." *Id.* (citing Nakada, Abst.); *see also* Ans. 6 (explaining that the Examiner is relying on Nakada for the definition of "porous" in the art). The Examiner further references Yamaguchi as evidence that "a non-porous anodic oxide film over an aluminum base is considered to be 30% or less." Final Act. 6. Thus, the Examiner infers that the "porous" layer disclosed in Ogawa must have a porosity of greater than 20%. *Id.* at 2–3. Appellant argues that "it is unreasonable for the Examiner to arbitrarily substitute a porosity from different technical fields, such as those of Nakada and Yamaguchi, for Ogawa." Appeal Br. 6; *id.* at 7 (arguing that "Nakada relates to an aluminum plate for a beverage can cap"); *id.* at 8 (arguing that "Yamaguchi teaches that the invention can be used for electronic component outer housings, air conditioning fin materials, structures and panels of automotive vehicles and aircraft, aluminum two-piece cans, etc.").

Ogawa relates to "an aluminum alloy-made part which includes an anodic oxide coating on a predetermined region and is suitably used for a valve, a piston, a cylinder block, or the like in an internal combustion engine such as an automotive engine." Ogawa, para. 2. Specifically, Ogawa discloses "an aluminum alloy-made part capable of enhancing the heat conduction performance in the interface between the anodic oxide coating and the base material and the heat radiation performance on the surface of the part concerned." *Id.* at para. 15. Thus, Ogawa discloses a "porous" layer in the environment of an internal combustion engine as it pertains to enhancing heat conductivity and heat radiation.

Nakada relates to "the thermoplastic resin coated aluminum sheet for a beverage can cap." Nakada Translation, para. 1.[3] Nakada discloses that, in making beverage can caps, 20% or less porosity is preferable to create a larger adhesion area of the anodic oxide film to improve adhesion to the resin layer. *Id.* at para. 14. Thus, Nakada is defining a nonporous film with respect to the adhesion properties of the film to a resin sheet in the context of a beverage can cap.

Yamaguchi relates to "a surface treatment aluminum material" for use in making a case of a machinery part, an air conditioner fin, an automobile, the structure of an airplane, or a building material panel. Yamaguchi Translation, para. 1–2.[4] Yamaguchi teaches that, to provide a surface treated aluminum material which has excellent corrosion resistance, a nonporous anodic oxide coating has a porosity of less than or equal to 30%. *Id.* at para. 21. Thus, Yamaguchi is defining a nonporous film with respect to the corrosion resistance properties of a film used for a structural panel of an automobile.

We agree with Appellant that it was not reasonable for the Examiner to rely on the discussion of "nonporous" anodic oxide films in Nakada and Yamaguchi as a means to discern a definition in the art for the degree of

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[3] We were not able to locate an English language translation of Nakada of record in the Image File Wrapper. We attach a copy of the machine translation on which we relied in Appendix A to this Decision.
[4] We were not able to locate an English language translation of Yamaguchi of record in the Image File Wrapper. We attach a copy of the machine translation on which we relied in Appendix B to this Decision.

porosity of the "porous" layer disclosed in Ogawa. The environment in which the coated part of Ogawa operates, e.g., under high heat conditions of an internal combustion engine, and the purpose of the coating in Ogawa, e.g., to enhance heat conductivity and heat radiation, differ significantly from the environment in which the prior art coatings of Nakada and Yamaguchi are used and the purposes of those prior art coatings. Thus, we decline to adopt the Examiner's inference that the nonporous coatings discussed in Nakada (used to enhance adhesion in beverage can caps) and Yamaguchi (used to improve corrosion resistance in structural panels) inform one as to the meaning of "porous" as that term is employed in the context of Ogawa, in which the anodic oxide film is used to enhance heat conductivity and heat radiation in an internal combustion engine.

Alternatively, the Examiner determines that "even without a supporting reference . . . one of ordinary skill in the art could readily surmise that a porosity of somewhere in the range of 20% could be considered to be porous, since the range is so broad." Ans. 7. Although we acknowledge that the claimed porosity of "20% or more" is broad, we decline to speculate that the "porous" anodic oxide film of Ogawa necessarily has a porosity within the claimed range.

The Examiner further finds that "Kobayashi . . . teach[es] that it is old in the art to provide a pore diameter in the nanometer order." Final Act. at 3; *see also* Ans. 9 (finding that "pore diameters in the nanometer order are conventional"). The Examiner determines that "[i]t would have been obvious to one having ordinary skill in the art to provide a pore diameter in

the nanometer order, as this is customary, and probably inherent, based on the size of most pores." *Id.* Appellant challenges the Examiner's stated reason to modify Ogawa with Kobayashi. Appeal Br. 10. We need not, and do not reach this assertion of error, because we find that the Examiner's findings as to Ogawa's porosity, as evidenced by Nakada and/or Yamaguchi, are insufficient to support the determination of obviousness.

For these reasons, we do not sustain the rejection of independent claim 7 and its dependent claims 8–10 and 13 under 35 U.S.C. § 103(a) as unpatentable over Ogawa, Nakada, and Kobayashi.

Claim 11 recites:

> A method for manufacturing the engine combustion chamber structure claimed in claim 7 comprising:
>
> preparing an aqueous solution containing at least one of phosphoric acid, oxalic acid, sulfuric acid and chromic acid, as an electrolytic solution used for anodic oxidation, in which the concentration of said electrolytic solution is from 0.2 to 1.0 mol/l and the temperature of said electrolytic solution is from 20 to 30°C, and
>
> performing an anodic oxidation treatment by using said electrolytic solution.

Appeal Br. 12–13 (Claims App.). Claim 12 depends from claim 11. *Id.* We treat claim 11 as a dependent claim, depending from claim 7. *See* Manual of Patent Examining Procedure, 9th Ed., Rev. 07.2015 (Nov. 2015), § 608.01(n)(II).[5] As such, claims 11 and 12 contain all of the structural

[5] Section 608.01(n)(II) provides, in pertinent part:

> The fact that the independent and dependent claims are in different statutory classes does not, in itself, render the latter

limitations of claim 7, from which they depend. For the same reasons as discussed above in our analysis of claim 7, we find the Examiner's determination of obviousness of claims 11 and 12 is not supported by adequate evidence as to the porosity of the structure. Accordingly, we do not sustain the rejection of claims 11 and 12 under 35 U.S.C. § 103(a) as unpatentable over Ogawa, Nakada, and Kobayashi.

DECISION

The decision of the Examiner to reject claims 7–13 under 35 U.S.C. § 103(a) as unpatentable over Ogawa, Nakada, and Kobayashi is reversed.

REVERSED

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improper. Thus, if claim 1 recites a specific product, [then] a claim for the method of making the product of claim 1 in a particular manner would be a proper dependent claim since it could not be infringed without infringing claim 1.

Notice of References Cited	Application/Control No. 13/264,626	Applicant(s)/Patent Under Patent Appeal No. 2015-005041	
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U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	B	US-			
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	APPENDIX A, THERMOPLASTIC RESIN-COATED ALUMINUM SHEET FOR BEVERAGE CAN CAP, NAKADA HAJIME; YAMAGUCHI KEITARO (Inventors), JP 2005349692 A. (Published 22 Dec 2005)
	V	APPENDIX B, SURFACE TREATED ALUMINUM MATERIAL AND ALUMINUM FORMED BODY, YAMAGUCHI KEITARO (Inventor), JP 2003003296 A, (Published 08 Jan 2003)
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

APPENDIX A

THERMOPLASTIC RESIN-COATED ALUMINUM SHEET FOR BEVERAGE CAN CAP

NAKADA HAJIME; YAMAGUCHI KEITARO (Inventors). MITSUBISHI ALUMINIUM (Assignee). **JP 2005349692 A**. (Published 22 Dec 2005).

Highlighting: Off | Single | Multi

Patent | Family (1 members)

Bibliographic information | Legal status

Abstract (summary) Translate

<P>PROBLEM TO BE SOLVED: To provide a thermoplastic resin-coated aluminum sheet for a beverage can cap not lowered in the adhesion of a resin coating layer even if subjected to retort treatment and excellent in corrosion resistance and flavor properties. <P>SOLUTION: The thermoplastic resin-coated aluminum sheet is constituted by forming a non-porous anodization film with a porosity of 20% or below and a thickness of 30-250 nm at least on one side of a substrate body comprising aluminum or an aluminum alloy, coating the non-porous anodization film with a silane coupling agent within a range of 0.1-100 mg/m<SP>2</SP>and forming a resin coating layer comprising a thermoplastic resin at least on one side of the substrate body. <P>COPYRIGHT: (C)2006,JPO&NCIPI